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THE MACHINE NEXUS: INSTITUTIONAL BIAS AGAINST A CAPABILITIES-BASED FORCE

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The Machine Nexus:
Institutional Bias Against a Capabilities-Based Force

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ABSTRACT

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The Department of Defense and Congress are currently conducting an extensive review of the U.S. Armed Forces for the purpose of determining the military capabilities that our nation will require in the 21st Century. Referred to as the Quadrennial Defense Review, or QDR for short, this review is supposedly a fresh look at defense needs in light of the requirements of the new post-Cold War world. Like the Base Force and Bottom Up Reviews that preceeded it however, the QDR was doomed from the beginning to merely promoting the solutions of the past. The reason for this is that the system within which the review is taking place is a product of the Cold War era, hopelessly trapped in the biases of a threat-based paradigm. Central to that paradigm is a machine nexus, or connection. The machine nexus is a way of thinking that says that machines are the keystone of defense and around them revolves everything else. This nexus forces the system to view the world through the colored lens of technology, seeing solutions to all things in the form of some new wizardy. This view is not in balance with the realities of the world. For that reason, if meaningful dialogues and decisions are to occur, the system must be shifted to a new capabilities-based paradigm; one with a balanced, vector nexus.

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"That which has been is that which will be, and that which has been done is that which will be done. So there is nothing new under the sun. Is there anything of which one might say, 'See this, it is new?' . . . There is no remembrance of earlier things. . ." Ecclesiastes 1:9-11

Disappearance of the Evil Empire brought not peace to the world but merely an ephemeral period of relaxation. This brief moment of world tranquillity was enough to generate within the United States an euphoric dismantling of defense structures. Banking on its theoretical technological edge, the U.S. postulated that a miniaturized version of its Cold War defense apparatus would be capable of dealing with the new world order. Then tranquillity gave way to a new reality.

The new reality was actually always there, an existent truth, but one that had been hidden by the Evil Empire's shadow. Irrational behavior, natural disasters, and purely demoniac actions began to manifest themselves around the globe and in the headlines. America's uniformed sons and daughters quickly found themselves sprinting from one crisis to the next. Even as the number of commitments continues to rise, the number of people to fulfill those commitments continues to dwindle. Where is the logical end?

Unfortunately for the people in uniform, the end is not necessarily related to logic. The path that we are on today is being determined by a mind-trap from the past, an unconscious but compelling paradigm— the technological tar baby known as the machine nexus.

The machine nexus (or connection) is one of two counterpoising philosophical approaches to matching defense requirements with defense resources. It is an approach rooted in the belief that the battlefield dominated by technology is the most difficult field of conflict to master. As such, the arch of defense should be constructed with machines as the keystone and people as supporting stones. The force is designed with equipment and systems as the core component of its capability, then manned and resourced in relationship to the needs of the machines. Enhancement of capability is achieved through the continued leveraging of technology.

In opposition to this philosophy is the second of the two approaches— the people nexus. It is rooted in the belief that the battlefield dominated by the complexities of humankind is the most difficult to master. As such, the arch of defense should be constructed with people as the keystone and machines as supporting stones. The force is designed with trained and skilled people as the core component of its capability, then equipped and resourced in relationship to the needs of the people. Enhancement of capability is achieved through the continued leveraging of the skills and abilities of people.

The frantic activity of the men and women of today's Armed Forces, the so-called high PERSTEMPO, is the result of a series of governmental decisions made during the period 1955 to 1974 that launched our defense bureaucracy on the path to internalizing and institutionalizing the machine nexus as the philosophical basis of its defense paradigm. The second and third order effects of these decisions have had a profound influence upon our way of thinking, to the point that today we are unable to objectively view the requirements, and costs, of the future. Yet, objectivity is paramount to decision making in an era of dwindling resources.

If we are to succeed we must move towards a new paradigm, one that will lead to the achievement of a true "capabilities-based" force, one that strikes a balance between the machine and the people nexus. In order to bring you to that same conclusion, this paper will address three things. First, it will take you on a brief, historical walk through the life of the machine nexus, focusing on the major landmarks that mark its rise to prominence. Secondly, it will illustrate the manner in which its existence today influences our look to the future– particularly in the areas of doctrine, force structure, and resourcing. Finally, it will offer the basis of a new paradigm; one more suitable for the challenges of the future– the vector-based nexus. To begin with, however, the goal must be defined.

Capabilities-Based Defined

ca•pa•bil•i•ty n., pl. -ties, the quality of being capable; practical ability
Webster's New World Dictionary

The term "capabilities-based force" is the first victim of the machine nexus. Used freely within defense circles as a descriptor of a wide variety of things, the term has become more of a buzzword or bumper sticker than something that is quantifiable. For the bureaucracy, the lack of quantification has a certain degree of desirability because it facilitates justification of any position presented; it promotes the comparison of apples and oranges. If "capabilities-based" is the desired nature of our armed forces, then what does it mean?

The term's unquantifiable nature is illustrated by the definition of it found in the Department of Defense Dictionary of Military and Associated Terms –"the ability to execute a specified course of action."[1] Noticeably lacking in this example is any discernible performance standard; that is, to possess capability requires only the capacity to execute.

Another example found in this same tome is an explanation of what it refers to as a "military capability"; that being "the ability to achieve a specified wartime objective (win a war or battle, destroy a target set)."[2] This version frames capability as being a

veritable catch-all (or be all) term; broadly grouping such widely diverse ends as "win a war" and "destroy a target set."

The joint community's definitions of capability do not establish the term as a meaningful touchstone. Lack of clarity negates its usefulness in measuring the relative merits of competing interests. This lack of clarity gives rise to the emergence of the "can do" mentality– the declaration of possession of ability on the basis of unstructured reasoning.

Joint Vision 2010 states that "Full Spectrum Dominance will be the key characteristic we seek for our Armed Forces in the 21st century."[3] It goes on to say that it ". . . serves as the basis for focusing the strengths of each individual Service or component to exploit the full array of available capabilities and allow us to achieve full spectrum dominance."[4] So, what are these capabilities that are to be exploited?

The Commission on Roles and Missions (CORM) of the Armed Forces defined capability as being "the ability of a properly organized, trained, and equipped force to effectively accomplish a particular mission or function."[5] Critical to the CORM definition is its focus on the balanced mix being targeted towards "accomplishing a particular mission or function." This focus gives recognition to the fact that practical ability has a common sense side to it. A hammer designed to drive a nail does not have the practical ability to tighten a nut.

The CORM definition describes a classic, holistic view of capability. Invoking the balance and symmetry of an equilateral triangle, the force would derive its practical ability to accomplish the mission or function through the achievement of an appropriate mix of people, equipment, organization and training focused on the particular mission or function it is to accomplish. Pictorially, it might look as follows:

Figure 1: The Capability Triangle

To speak of capability, therefore, is to invoke a visualization of a force that has the practical ability to fulfill a particular mission or function through its unique mix of people, equipment, organization and training.

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The Genesis of the Machine Nexus

"(the) United States has a strategy based on arithmetic. They question the computers, add and subtract, extract square roots, and then go into action. But arithmetical strategy doesn't work here. If it did, they'd have already exterminated us."
Vo Nguyen Giap , Commander-in-Chief, Vietminh Army 1969

The machine nexus owes its existence to a series of governmental decisions made during the Cold War. One by President Eisenhower in 1955 gave birth to the nexus. Another by Secretary of Defense McNamara in 1962 added structure to the nexus. A series by Congress during the period 1949 to 1974 institutionalized the nexus. Combined, they represent the genesis of the current institutional bias.

The period immediately following the conclusion of the Korean War was one of shifting national issues. Domestic concerns rose to the top of President Eisenhower's national agenda. In an effort to free up more of the budget for domestic programs, Eisenhower sought ways to cut the defense budget. As always in a world of certain threats and uncertain allies, cutting defense represented risk-taking, not only in the arena of national security but that in the arena of politics as well. To take such a risk required a marketable justification. For Eisenhower, the ex-military leader, that saleable justification was the U.S. technological silver bullet– nuclear weapons.

Eisenhower saw in nuclear weapons a method to scale back expenditures in traditional military forces. Through the leveraging of these unique machines, conventional forces could be drastically cut with the expectation that the mere threat of U.S. application of its technological hammer would deter conflict in any form.. It was not an easy sale, however. His World War II subordinate and then current Chairman of the Joint Chiefs, Omar Bradley, did not buy into the technology solution and refused to support the change. As a result, Eisenhower replaced him with Admiral Arthur Radford, a naval officer "whose career had raced ahead, propelled by the force of modern technology."[6]

With a more supportive subordinate, Eisenhower pressed the issue on cutting defense. His primary ally in the cause was then Secretary of the Treasury George Humphrey. Humphrey expressed the administration's position when he stated "there would be no defense but only disaster in a military program that scorned the resources and the problems of our economy– erecting majestic defenses and battlements for the protection of a country that was bankrupt."[7] This view was shared by the new Chairman of the Joint Chiefs of Staff, Admiral Radford.

An advocate of supplanting traditional forces with those based on technology, Radford gave Eisenhower the justification he needed by postulating that "military options could be narrowed, fewer contingencies could be planned for, and nuclear weapons could

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be used early on across the spectrum of conflict."[8] Thus the military hierarchy put forth the belief that technology designed for high intensity conflict was capable of fulfilling requirements across the spectrum of conflict through the mere threat of its use. Thus the stars of the machine nexus came into alignment and the paradigm was born.

In the years leading up to 1962, the services essentially did their own thing when it came to justifying their diverse programs; engaging in extensive intramurals to carve out their own niche in the world of capabilities. In 1962, Secretary of Defense Robert S. McNamara came to the conclusion that these intramurals were inefficient and self-defeating. He viewed defense as a large business that required business-like systems to manage its production efforts. To centralize management and "wrest control" of the services' budgets, McNamara implemented the Department of Defense Planning, Programming and Budgeting System (PPBS).

The intent of PPBS was to cause budgets to flow from programs, programs from force requirements, force requirements from military missions, and military missions from national security objectives.[9] It had, and continues to have, as its major tenet the need to restrict and control change.[10] McNamara designed PPBS so that each service presented its individual program to him in a single book to which he then could apply a classic cost-effectiveness analysis in program discrimination.

After implementation the system evolved along normal business lines such that "in the beginning evaluations emphasized technical merit, defense needs, and adequacy of proposals . . . (and soon) shifted . . . to affordability."[11] This shift to affordability, in combination with the system's fundamental operating tenet of restricting change, caused the machine nexus to become institutionalized by the manner in which it influenced the way decisions were made.

Unforeseen in the adoption of this process was the innate advantage possessed by machines in their adaptability to standard business management processes and procedures. By placing the quantifiable and measurable technology at the center of the equation and moving people with their non-quantifiable nature to the fringe, simple math could be employed; that is, capability could be explained with spreadsheets in the early days and with computer simulations later on. This mathematical dexterity promoted the rapid spread of the nexus to all areas of the defense management structure through the PPBS system.[12]

Congress was not idle during this period of paradigm shift. During the late 1950s and early 1960s, Congress felt itself to be losing control of the accountability for monies spent; that is, they could not discern what capabilities were being bought. The Congressional dilemma was that "few of the (appropriations) are even remotely like end-

product missions, and dollar amounts are not the costs of achieving capabilities in such missions. Instead, the items are collections of objects used in a variety of tasks; and the dollar figures are the sums of selected costs from all of them."[13] In an effort to reestablish fiscal coherency to defense outlays, Congress passed the Congressional Budget Act of 1974 (PL 93-344)– the Act requiring mission budgeting.[14]

The intent of the Act was straightforward: establish a direct link between capability to fulfill stated missions and financial outlays in the form of appropriations required to fund the capability.[15] The spread-sheet adaptability of machines fit extremely well into this new format; in fact, too well as described by the Comptroller of the Army during the late 70's through the 1980's, Wayne Allen:

> "Unfortunately, for the performance/mission budgeting concept, narrow interpretations of Congressional intent evolved in the post-1974 period. In the Defense Department the term mission was closely associated with weapon systems with the result being the channeling of 'mission-related actions' into the acquisition community and the narrowing of scope to the RDT&E and procurement appropriations. Mission budgeting thus tended to become identified with partial costs vis-a-vis total costs."[16]

The bureaucratic language of appropriations took on the classic air of big business by referring to funding lines as being either investments or operations. Investment appropriations almost exclusively involved the application of money towards the acquisition of new technology and equipment. Operation appropriations involved paying for the cost of on-hand equipment, people, operations and training. The final irony was played out when within the lexicon of appropriations you "invested" in equipment and technology and "operated" people.

This methodology served to promote the machine nexus in two ways. First, by establishing separate funding lines for the individual components of capability, the system attributed capability status to each element– thus facilitating the placing of them in competition with the most cost effective being the winner. Secondly, by separating the "investment" costs of equipment from its "operations" cost, the system gave equipment and technology "capability" a cost effectiveness edge when competing against the other "capabilities"– people, organization and training. The collective effect of the congressional appropriations methodology was to build a Tower of Babel within which capabilities were discussed with a twisted vocabulary, slanted spread sheets, and a machine bias.[17]

Eisenhower's championing of the nuclear silver bullet established the paradigm that technology was equally effective across the spectrum of conflict. McNamara's PPBS

divided capability into its components, defining them individually as being capabilities in and of themselves. The congressional appropriations methodology formalized the comparison of the components as competitors for resources, giving the cost-effectiveness edge to technology through the diffusion its costs into a variety of funding categories. These actions in combination have evolved into a defense requirements determination system that through its institutionalized rules, procedures, processes, and vocabulary, force any discussion on capability options to eventually focus on a technology solution.

This bias has had, and continues to have, a profound influence upon everything that it and its host systems touch. To illustrate this, three major areas in which the nexus has manifested itself will be discussed: doctrine, force management, and resourcing.

The System Bias: Manifestations in Doctrine, Strategy, and Vision

"(Dien Bien Phu) would be the set-piece battle the French had wanted for some time; . . . the French would finally be able to use their superior weaponry. . . it would be, the French thought, men against boys, professionals against amateurs. . . in a way the very concept was a study in Western arrogance. . . " David Halberstam, The Fifties.

Doctrine is the set of fundamental principles by which our armed forces guide their actions in support of national objectives. Strategy is the description of the role to be played by our military forces in helping to achieve those national objectives. Vision is the armed forces' self-perception of the form that those roles and principles will assume in the future. Doctrine, strategy, and vision together are the conceptual basis for force design and management. Defining the nature of this military canonical trinity is the term "evolutionary" for it and its components are direct descendants of Cold War ancestors,[18] perpetuating the centrality of the machine nexus in the military capability ethos.

The Cold War strategy of containment generated a doctrinal structure that was understandably focused on the threat to be contained. Over time, that doctrine underwent several evolutionary (not revolutionary) revisions. A synopsis of those revisions extracted from the Army's current keystone publication FM 100-5 [19] follows:

√ 1976- Active Defense-caused by the emergence of a new order of weapon lethality revealed in the Arab-Israeli War of 1973; set as its priority the defense of NATO Europe against a quantitatively superior Warsaw Pact; accepted force ratios as a primary determinant of battle outcomes and argued the virtues of armored warfare and the combined arms team.

√ 1982- AirLand Battle- caused by rising defense budgets and a stronger recognition of the possibility of worldwide commitment of Army forces combined with an appreciation of operational depth and maneuver; . . . .

√ 1986- AirLand Battle "revised"- caused by ability to see deep translated into recognition of the need to fight deep; emphasized operational art.

√ 1993- AirLand Battle "evolved"- caused by end of Cold War and change in the nature of the threat; increased the incidence of combined operations; recognized that Army forces operate across the range of military operations.

The last of these revisions (the current keystone document) with its advertised recognition of the range of military operations, devotes 73 pages to the conduct of Major Regional Contingency- type operations while allocating 8 pages to the balance of the spectrum of conflict. This skewed view is mirrored in the philosophical approach to translating doctrine into force structure as exemplified by a recent Army Times article which states:

> "... the Army has up to now successfully fought off suggestions that it establish units designed specifically for peacekeeping. The Army believes there is more efficiency and less risk in keeping all its tactical units trained for war, but then using them in operations other than war with a little retraining, rather than creating special peacekeeping units that would need substantial retraining and re-equipping before they could be deployed to fight.[20]

"Peacekeeping" appears in this article as a belittling, non-warrior type term encompassing all operations other than the MRC-level type conflict. It subtly links the nexus-defining terms "design" and "equipping." It refers to people merely in terms of having to be "trained" or "retrained." The underlying thought is that the "people-ing" of forces is relevant only in terms of their relationship to the equipment.

This belief reflects the bias contained in the The National Military Strategy as exemplified by its statement that "the core requirement of our strategy . . . is a force capable of fighting and winning two major regional conflicts simultaneously . . . while this requirement *most challenges the force structure* (italics added), other needs . . . have also been taken into account."[21] If the simultaneous fighting and winning of two MRCs is the greatest challenge to our force structure and we currently possess the "capability" to meet that requirement, why is the people component of capability excessively stressed today in the absence of a MRC conflict? The answer is the overselling of technology.

The National Security Strategy lays forth that "... balanced U.S. forces are needed in order to provide a wide range of complementary capabilities. . . integral to these efforts is the development of new systems and capabilities, incorporating state-of-the-art technology and new and more effective combat organizations."[22] Imbedded

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within this statement are subtle machine nexus cause-and-effect concepts: "new systems and capabilities," "state-of-the-art technology and effective organizations." The problem with this approach, or strategy, is that the logical extension is that as technology becomes increasingly better, people become increasingly irrelevant. You can do more, better, with less if the capability touchstone is technology.

Once this tenet is established, then the validity of its effectiveness and applicability across the spectrum of conflict becomes arguable. The following table extracted from Army Vision 2010 [23] is an example of this prima facie attribution of capability:

Missions	Required Army Capabilities
Defending or Liberating Territory	
MRC	HVY/LT/SOF
LRC	HVY/LT/SOF
Punitive Intrusion	
Counter Drug	LT/SOF
Counter Terrorism	LT/SOF
Counter Proliferation	SOF
Conflict Containment	
MOOTW	HVY/LT/SOF
Leverage	
TMD	TECH
Space Applications	TECH
C4I Systems Integration	TECH
Battlefield Awareness	TECH
Reassurance	
Presence	HVY/LT/SOF
Core Security	
NMD (WMD?)	TECH
Counter Drug	SOF
Illegal Immigration	LT/SOF
Crime in the Streets	LT/SOF
Humanitarian	
Disaster Relief	LT
Population Evacuation	LT/SOF
Refugee Protection	LT/SOF

Figure 2: Army Vision 2010 Full Spectrum Capabilities

The table shown above is intended to illustrate the spectrum coverage that particular types of forces provide. Critical to its comprehension is the understanding that the type-forces listed were organized, manned, equipped, and trained for the mission category "Defending or Liberating Territory." These same forces are then considered to possess the "capability" to meet the requirements of all other mission categories with "limited train-up." Let's consider the practical ability of this line of reasoning.

As an example, this table simplistically suggests that Special Operations Forces (SOF) are capable of fulfilling an LRC or counter terrorism requirement. To actually provide the practical ability to meet the LRC mission, separate SOF group-size organizations are trained with a particular focus on specific regions in the world. For counter terrorism, a specific, highly trained SOF counterterrorist organization exists. In

other words, to achieve "practical ability," SOF units must be specialized, with that specialization occurring primarily in the areas of people and their training.

This potentially misleading table is an example of understating the cost of providing required capabilities through the use of simplistic constructs. It illustrates how "capability" has evolved into a term that has as little or as much relevance someone wishes to attribute to it. In the case of SOF, it is not an issue. Major national embarrassments caused by real-world operational failures of SOF doctrine and design forced Congress and the Department of Defense to shift the paradigm upon which it was based.

In this shift of the SOF paradigm the improvement of the equipment component continued to receive attention, but the improvement of the people and training components were brought back into balance with that of the equipment. The bureaucracy has now established the vector based nexus as the basis of SOF capability. For the Army, Air Force, and Navy, however, the old machine nexus base still applies.

The Air Force's and Navy's doctrine and structure are rightfully based upon this equipment connection. Their roles are to operate in environments that are not the natural habitats of humans; they derive their practical abilities to do so from machines. The Army's role on the other hand, is to operate within the historical environs of man. It derives its practical abilities to do so from people. The nature of the system, however, governs it by the same rules that it does the other two services creating for the Army a conflict between roles and rules. This conflict places the Army in the position of being people-based but equipment-justified, a dichotomous state that generates continuous disconnects between stated doctrinal requirements and stated resource priorities. An ongoing example of this is found in the area of training.

In public statements of strategy-derived training requirements, the machine nexus-forced position is that Army forces prepared for "war" can accomplish any other mission assigned with minimum effort. These statements are in conflict with the Army's doctrinal demands that establish the canon that only through the conscious narrowing and focusing of training tasks can units be prepared to effectively respond to requirements. The Army, on the one hand, says that combat readiness requires focused, sustained training on specific requirements; on the other hand, says that if you train for one conflict you are ready for any other. This dichotomy is not something new. An Army Research Institute study on the determinants of effective unit performance discerned this conflict between public statements and private realities and warned that:

> "The traditional 'can do' attitude which is courageous on the battlefield
> may defeat . . . efforts to secure and defend necessary . . . resources during

peacetime. As demonstrated by earlier Congressional pressures to defend.
. . budgets, future . . . budgets will come under increasing pressures.
Emotional pleas to do what is right or to trust command judgment on
resource requirements cannot be expected to win. Instead, hard data
showing the resources required to achieve and maintain proficiency on
valid military tasks offer the best hope for successfully defending. . .
budgets."[24]

Operational examples of the price to be paid for this dichotomy are numerous
with the most telling of them, perhaps, being the Vietnam War. In this case, the U.S.
committed its industrial nation style force into an agrarian conflict confident that the
enemy was a second rate adversary because of its technology-poor strategy and force
structure. The resulting debacle led to the virtual emasculation of the U.S. military and
the fracturing of American society. Jeffrey Davidson captured the paradoxical nature of
this conflict when he said:

"the real question in the postwar debate over strategies pursued and not
pursued in Vietnam, was not what was the proper strategy to guide the
ground war in South Vietnam, but what kind of war was the United States
fighting in Vietnam at any given period."[25]

Vietnam provided a fundamental lesson on the price to be paid for failing to
understand the biases through which requirements are viewed. In the case of Vietnam,
agrarian nation-style conflict proved to be decidedly different than its industrial cousin
(prepared for war in Europe did not equal prepared for war in third world country).
Capability proved to be a term best defined in terms of a practical versus theoretical
ability to fulfill the requirements of a particular type of conflict (superior technology
neither deterred the conflict nor prove effective in winning it once deterrence failed).[26]
The term "war" itself proved to be best defined in terms of the intensity of commitment
versus the sophistication of equipment.[27] Borrowing from Halberstam's observation of
the French experience in the same environment, [28] the U.S. belief that its technologically
superior force was capable of dominating the agrarian-type conflict found in Vietnam was
but another "study in Western arrogance;" in agrarian conflict capability, the U.S. was not
a peer of Vietnam.

"Western arrogance" continues to this day because it is a defining characteristic of
our national psyche; one that demands the exaltment of technology. This characteristic is
not something new; on the contrary, it was observed as early as the 1830's when a French
observer, Alexis de Tocqueville, noted:

"... every new method which leads by a shorter road to wealth, every machine which spares labor, every instrument which diminishes the cost of production, every discovery which facilitates pleasures or augments them, seems to be the grandest effort of the human intellect."[29]

Viewing the world through the kaleidoscope of technology, today's canonical triad of doctrine, strategy, and vision continues to reflect the technology colored bias of its threat-based ancestor. When faced with dichotomies between roles and rules as in the Army's case, it attempts to explain the unexplainable with catchy, but meaningless phrases like "modality of agility." It argues in almost a split-personality manner that technology is the solution but people are the need. It forgets that historically "weapons are an important factor in war, but not the decisive one; it is man and not materials that counts;"[30] a truth revisited every time a technology-based nation confronts a determined foe from the agrarian world.

The System Bias: Manifestations in Force Management and Resourcing

"... we are largely administrators of granted resources as opposed to being managers of derived and prioritized needs." Wayne Allen, Comptroller of the Army, 1981

Force management is the method by which the trinity of strategy, doctrine, and vision are translated into capabilities. Resourcing is the method by which those capabilities are brought to life. Theoretically, force management is a multi-dimensional, holistic method (or approach) to molding the means to fit the end; that is, it supposedly takes an unbiased look at the requirements of the world and translates them into required capabilities. Resourcing is the method by which strategy, doctrine, and capabilities are harmonized and correlated by employing the filter of priorities. It, too, espouses a fundamental claim to neutrality in judgment. Both force management and resourcing, however, are victims of the machine nexus bias.

The Army Force Management System encompasses the functional areas of: (1) battlefield requirements determination, (2) research and development, (3) force development, (4) resourcing, (5) acquisition, and (6) fielding. Central to this system are two major points of decision: (1) the identification of solutions to requirements and, (2) the translation of solutions into programs.

Identification of solutions is accomplished through TRADOC's Enhanced Concept Based Requirements System (ECBRS); a decision making methodology used to identify and prioritize Army warfighting needs. Based upon four pillars– Army missions, historical perspectives, threat analysis, and technological forecasts-[31] ECBRS historically began its decision process with the Threat.

Since the demise of the Warsaw Pact, threat analysis has been focused on Illustrative Planning Scenarios (IPSs) derived from DOD's Defense Planning Guidance (DPG). These IPSs cover the spectrum of possible military actions. However, the IPS known as the "two near simultaneous Major Regional Contingencies" replaced the defunct Soviet/Warsaw Pact threat as the dominant factor in requirements determination.

ECBRS defines battlefield requirements holistically in five domains: new materiel, reorganization, new doctrine, training, and leader development.[32] Of these, only two– new materiel and reorganization– pass their outputs on along the critical path of force development.

The new materiel and reorganization domains together produce two major outputs: the mission needs statement (MNS) and the operational requirements document (ORD). The mission needs statement is a requirements document that outlines deficiencies in current capabilities and identifies required capabilities, in broad operational terms, which can only be satisfied by a materiel solution.[33] The operational requirements document contains performance (operational effectiveness and suitability) and related operational parameters for a proposed concept or system. Thus the products of the first step of force management are "required capabilities" defined by "materiel solutions" with their "related operational parameters."

The process directed towards identifying solutions is thus biased in three significant ways. First, it narrows the requirements up front to that of the MRC IPS. Second, it promotes the materiel portion of its solutions to those requirements. Third, it downplays the people and training portions of those solutions by shunting them into secondary systems. The combined effect is the termination of the holistic approach in the very first phase of problem solving.

After these biased required capabilities are run through the research and development and force development phases they end up in PPBES where the second major decision point is found: translation of requirements into programs, the sum of which is known as The Army Plan (TAP). TAP translates requirements into programs through the integration of two major inputs: the Total Army Analysis (TAA); and the Research, Development, and Acquisition Plan (RDAP).

TAA is a computer-aided process used to determine total force requirements. It draws guidance from TAP and other sources and generates requirements for manpower and equipment. TAA helps to first assess force capabilities and then to determine, verify, and justify Army requirements. For each program year, TAA develops a force program that meets projected mission requirements within expected end strength and equipment levels.

RDAP is a 15-year plan for the development and production of technologies and materiel to support Army modernization. It develops a research, development, and acquisition program that will maximize warfighting capabilities within limited resources.

Two products emerge from the RDAP process. One is TRADOC's Warfighting Lens Analysis (WFLA); the other, a corresponding Science and Infrastructure Support Analysis (SISA). Prioritizing materiel solutions and optimizing dollars spent on modernization programs, WFLA and SISA provide the analytical underpinning for the Army Long Range Research, Development, and Acquisition Plan (LRRDAP).

Thus the inputs to PPBES in support of its critical task of converting requirements into programs consist of: (1) the TAA computer-generated force programs based upon the "required capabilities" defined by "materiel solutions" with their "related operational parameters" provided by the preceding force development phase, and; (2) the prioritized and cost-optimized materiel solutions provided by the RDAP process. The so-called holistic approach to force management in reality is in reality a biased methodology of proving the worth of technology.

In no area is there a greater manifestation of the machine nexus bias than that found in resourcing. The resourcing methodology employed within the defense structure today firmly establishes the primacy of the machine nexus and its MRC/threat-based paradigm. Mechanisms like TRM, OPTEMPO, and DAMPL add the final, confusing element to the apples and oranges comparison debate over capabilities. To illustrate the extent of the bias, a brief discussion of the key features of each of the three resourcing mechanisms listed above is necessary.

The Training Resource Model (TRM) is a Department of the Army programming method to define and defend unit operating costs. TRM is based on current Combined Arms Training Strategies (CATS) plus other unit operating needs.[34] Developed by the Army Training and Doctrine Command, CATS define training templates for specific types of units to provide for a standardized approach to preparing for an MRC-type conflict. These CATS derived models are known collectively as Battalion Level Training Models (BLTM).

BLTMs contain unique training strategies (to include the frequency and duration of execution of the component training events) from which required miles and hours of equipment operations are determined. TRM converts training events into miles/hours of equipment usage– commonly referred to as Operating Tempo or OPTEMPO.

Like steaming days and flying hours of the other services, OPTEMPO is a Department of Army programming tool that links money allocations for operations and maintenance to estimates on the cost of operating pieces of equipment in combat

organizations. 94% of the total force is covered by OPTEMPO (not, however, Special Operating Forces or the training base).[35]

OPTEMPO is subdivided into two parts: direct and indirect. Direct OPTEMPO funds the cost of actually operating the item of equipment. It is a variable amount based upon the modeled training strategy requirement and historical data. Indirect OPTEMPO funds the ancillary costs of operating the equipment; in other words, the costs of having people operate the equipment. Shown below are the sub-categories of direct and indirect OPTEMPO for a typical ground combat unit:[36]

Direct OPTEMPO Costs	Indirect OPTEMPO Costs	
consumables	Class II & IV Supplies	Other Contractual Services
equipment scaling	Contractual Services (ADP)	Other Unit costs
FSC	Medical Supplies	Travel (general)
POL	NBC Supplies & Equipment	Travel (TRADOC Schools)
Reparables	Organizational Clothing & Equipment	ASIF Charges
	Troop Schools (DA Approved)	Communication Batteries
	Aviation Maintenance Services	Army Learning Center
	All Source Analysis System	Army Personnel Testing
	Digital Topo Support System	Army DMR (travel)

Figure 3: Example Direct and Indirect OPTEMPO Cost Categories

While OPTEMPO defines the training monies required to operate the equipment in meeting the needs of the BLTMs, the DAMPL establishes the priority by which those monies will be actually handed out. The Department of Army Master Priority List (DAMPL) is a prioritized list of all claimants for Army resources. Prioritization, for the most part, is linked to the commitment timing of organizations in support of MRC warplans. The DAMPL is the method of applying fiscal constraints upon operations and maintenance (and other resourcing activities like personnel distribution) expenditures.

Like force management, for resourcing the start point is the threat. Against that threat is arrayed a force structure designed for that specific piece of the conflict spectrum. For each of the unique force structure entities, a training model is developed targeted to prepare the entity for success in the MRC. Central to those training models is the training associated with the principal pieces of technology and equipment around which the unit is designed. Those pieces of equipment are treated as the cost drivers because they are the "key" element of the unit's capability. Monies are allocated based on the number of hours or miles those pieces of equipment are operated in order to train for the MRC conflict.

Those monies are adjusted (mostly downward) based on the individual unit's priority of commitment to the MRC with earliest deploying units being the highest resourced.

Theoretically, OPTEMPO is a HQDA programming tool, not a unit level execution/ reporting tool. It is suppose to be just a method of allocating money not a locked in concrete determination of how a unit will spend its money. However, in reality, it becomes a hard benchmark against which units are measured as evidenced by this GAO report to Congress:

> ". . . Congress fully funded the Army's request for OPTEMPO requirements on the basis that the funds were needed in order to attain and maintain a ready Army. . . the amount appropriated. . . was more than the Army requested and was more than sufficient to enable the Army to achieve its prescribed readiness levels based on a 800-mile training rate . . ."[37]

While OPTEMPO is supposedly only a programming method, it is used as well as an accounting tool. Department of the Army and Office of the Secretary Defense level accounting offices track equipment usage data from every unit. They look at the miles used (in this case 620) versus the stated need of 800 miles and then check the readiness report (in this case it had stayed at the highest level of readiness). The logical machine nexus question is: "If you are not using the equipment as much as your training model says you should, how can you be ready to go to war?" This is usually followed by an accusation that commanders are diverting the monies to secondary projects and, by implication, trying to hide the diversion by reporting unrealistically high readiness levels.

The bottom line is that the vast majority of real-world operational tasks assigned to units are not related to the MRC-based training models. The majority of these non-MRC requirements place a premium on people not equipment. The training events, supporting training aids, expended classes of supply, etc., all are markedly different than the funded training models. The machine nexus has caused an accounting method to be emplaced that says that 85% of OPTEMPO money should be spent on the cost of operating equipment while the remaining 15% is spent on everything else (the people cost).[38] The fact is, when preparing for engagement in anything less than a MRC, those percentages are inverted.

Within the area of force management and resourcing, the system predestines the machine nexus for success. Within the framework of force management, it establishes criteria that leads inevitably to a technology solution and then proves it within computer modeling systems that treat people and training as constants and equipment as the variable. On the resourcing side, the system begins with the conclusion that equipment

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designed primarily for the MRC conflict is the central component of capabilities and people exist only to operate that equipment. Upon that basis then it programs and accounts for expenditures, flogging organizations that do not have the political acumen to conceal their real requirements. In the final analysis, the system is a child of the machine nexus and can do nothing more than regenerate its likeness.

Towards a Capabilities-Based Paradigm

"Looking back, I clearly erred by not forcing . . . a knock-down, drag-out debate over the loose assumptions, unasked questions, and thin analysis underlying our military strategy in Vietnam I had spent twenty years as a manager identifying problems and forcing organizations– often against their will– to think deeply and realistically about alternative courses of action and their consequences. I doubt I will ever fully understand why I did not do so here." Robert McNamara In Retrospect

Senator John McCain has presented the challenge that "we must reshape our strategy, tactics, and force plans to meet a new set of regional contingencies, proliferation, and global competition."[39] To do so will require realistic thinking, a shift in paradigm, and a change in systems.

To achieve an environment in which realistic thinking can occur will require that the disbelief wrought by the workings of institutionalized bias be temporarily suspended. Knowing that for nearly 50 years the bias has been at work influencing everything it has touched, progress can be achieved only by refraining from reaching back into the tar baby for examples. As has been said before, everything must be on the table. To start anew requires the establishment of a new touchstone and a new azimuth of movement.

The start point of change is the expanded CORM definition of capability– "the practical ability of a properly organized, trained, and equipped force to effectively accomplish a particular mission or function." This definition becomes the touchstone of a vector-based nexus for a new capabilities-based paradigm. Within the context of this tenet a new azimuth is defined through the accomplishment of three tasks: first, look anew at the world order and the nation's place and desired roles within it; second, define the requirements for military capabilities within that world view; third, establish the systems that allow the desires and realities to come into balance and the resulting requirements for capabilities to be practical.

The machine nexus view of the world is that of a continuous range or entire extent of conflict with the most challenging end being that of the MRC. Within the limits of this technology-oriented view is derived the term "spectrum of conflict." With this as the defining world-view, there can be no escape from a threat-based paradigm for the requirements are seen only as shades of differences from the one, primary threat.

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In a different approach, one in which people and technology are brought into balance, the world could be viewed as a collection of smaller worlds: a collection of different outlooks and experiences. This view would promote a picture of a world divided into the have's and have not's.

Dominate within this world are the have not's– those nation-states still rooted primarily in the agrarian past. Smaller in number are the industrial nation-states constituting the primary players in the traditional world scene. Newest upon the scene are the the states without borders– the trans-national world– made up of international groups and entities that operate legally and illegally across international boundaries. Common to all three worlds because of the relative ease of its attainment, is the informational sector; the conduit of interaction existing in the world of interconnected computers.
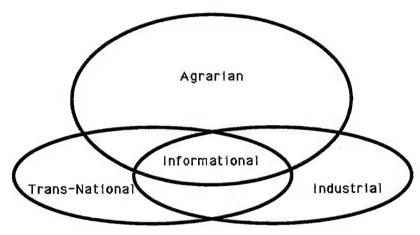
Figure 4: The Worlds of Competition, Crisis, and Conflict

Within this world of worlds collisions occur in the forms of competition, crisis, and conflict as outlooks and desires clash. Capacity to assume a position of domination is measured in terms of the requirements of the world in which the collision occurs, not by those of the world from which the player comes. The requirement then for a nation that seeks superpower, or trans-world domination, status is to possess the practical ability to dominate in each of the sub-worlds.

The second task is to define the requirements for military capabilities within this world view. To accomplish this requires constant remembrance that capability consists of three practical ability components: people, equipment, and organization and training. With this in the back of the mind, the choice of design nexus becomes clear.

Historically, the requirements of the agrarian world have predominately been people intensive while those of the industrial world have been equipment intensive.

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Therefore, to achieve a practical ability within those two spheres requires the application of two different nexus': one people based, the other equipment based. In the relatively uncharted trans-national world, there is yet no clear indicator of the appropriate nexus to be used. Viewed from a common vantage point, requirements determination would require a vectored-nexus approach; that is, each world would require unique solutions.

To achieve practical ability within structure, each world would require different mixtures of people and equipment. To achieve practical ability in training would require unique programs focused on specific requirements. To achieve trans-sphere capability would require each structure to be addressed by both nexus'; equipped for industrial requirements, manned for agrarian requirements. The result would be, from a macro view, a capability-based force such as depicted below:
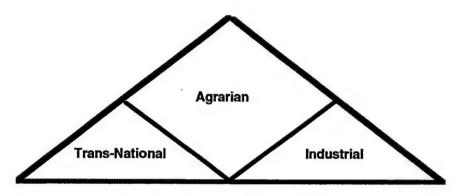
Figure 5: The Capabilities-Based Force

Finally, to achieve real progress, the systems that balance desires, realities, and practical abilities must be established. To do so requires a system that embodies three major tenets: relational perspectives, managerially meaningful constructs, and practical priorities.

The relational perspectives of capabilities management resemble a pyramid with the view becoming more panoramic and less detailed as the viewer rises towards the apex of management levels. The top of the military capability management pyramid is the macro-view position of entities like Congress and the President. The mid-view is that of OSD and the Joint Chiefs of Staff. The micro-view is that of the services. Fundamental to the relational perspectives tenet is the understanding by viewers at every level of what they can, and should, know and manage.

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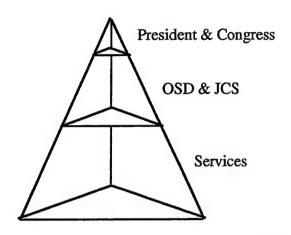
Figure 6: The Relational Perspectives of Capabilities

Relational perspective is made viable through the application throughout the system of managerially meaningful constructs. For a construct to have meaning and usefulness in the realm of management it must be one that describes practical abilities in terms of total costs. In terms of military capabilities, such a construct would encompass the sum total of life cycle costs of each of the components as illustrated below:
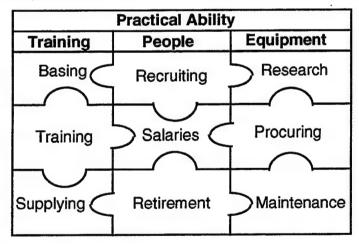
Figure 7: Practical Ability in a Managerially Meaningful Construct

To contrast this to an example within the current system[40], instead of Congress managing capabilities through appropriations for components of total costs (personnel, research, operations, etc.) as it does now, it would manage each capability through its unique appropriation. This would allow direct, clear links between requirements, capabilities, priorities, and resourcing. Only through the use of such constructs can actual costs be determined, informed choices be made, and accountability be established.

The final tenet, practical priorities is applied in concert with managerially meaningful constructs, and relational perspectives. It consists of nothing more than the

application of honest, straightforward, common sense judgment. It addresses the most difficult decision to be made in achieving a capabilities-based force: "Is this the practical ability the nation needs most from its Armed Forces?"

Conclusions

"Strategy, program, and budget are all aspects of the same basic decision."
President Harry S. Truman, 1945.

If the Armed Forces of the United States are to possess relevancy in the 21st Century, the system that manages them must be changed. The current system, ranging from the Congressional appropriations methodology to the service-peculiar force management methodologies, is crippled by the legacy bias of the Cold War era: the threat-based paradigm with its associated machine nexus.

The world of today and tomorrow is strikingly different both in terms of challenges and requirements. Sustainment of relevancy in that new order requires that the nation's military capability management system be rebuilt upon a new paradigm— one that is capabilities-based with a balanced view of people, equipment, and training. By shifting the system's world-view and paradigm base, the Armed Forces that it manages will possess a much greater, and in the long run, more economical practical ability to meet the needs of the nation they serve.

ENDNOTES

[1] Chairman, Joint Chiefs of Staff, Joint Publication 1-02 <u>Department of Defense Dictionary of Military and Associated Terms</u> (Washington: U.S. Government Printing Office, 1994), 60.

[2] Ibid., 237. The definition goes on to say: "It includes four major components: force structure, modernization, readiness, and sustainability. a. force structure– numbers, size, and composition of the units that comprise our Defense forces; e.g., divisions, ships, airwings. b. modernization– technical sophistication of forces, units, weapon systems, and equipments. c. readiness– the ability of forces, units, weapon systems, or equipments to deliver the outputs for which they were designed (includes the ability to deploy and employ without unacceptable delays). d. sustainability– the ability to maintain the necessary level and duration of operational activity to achieve military objectives. Sustainability is a function of providing for and maintaining those levels of ready forces, materiel, and consumables necessary to support military effort."

[3] Shalikashvili, John M., <u>Joint Vision 2010</u> (Washington: Office of the Chairman of the Joint Staff, undated), 2. Full spectrum dominance is subsequently described as being "the range of military operations."

[4] Ibid., 34.

[5] White, John P., Chairman, <u>Directions for Defense: Report of the Commission on Roles and Missions of the Armed Forces</u> (Washington: Department of Defense, Commission on Roles and Missions of the Armed Forces, 1994), Glossary 3.

[6] David Halberstam. <u>The Fifties</u> (New York: Villard Books, 1993), 397.

[7] Ibid., 396.

[8] Ibid.

[9] Richard L. Williams, James D. Blundell, Sandra J. Daugherty, George E. Ehling, Lori J. Johnston, and Leslie A. Ballard, <u>Planning, Programing, Budgeting, and Execution (PPBES) Handbook</u> (Washington: Program Analysis and Evaluation Directorate, 1982), xxv.

[10] Patrick M. Roddy, <u>Planning, Programing & Budgeting System: An Executive Primer</u> (Washington: Office of the Director, Program Analysis and Evaluation, undated), 1.

[11] Williams, 1-2.

[12] Directorate of Cost Analysis, Office of the Comptroller of the Army. <u>Towards PPBS II: Mission Budgeting– Notions on Improving the Managing of Resources</u> (Washington: Office of the Comptroller of the Army, Department of the Army, 1981), 25. In this document the then Comptroller of the Army– Wayne Allen– makes the

observation that "To be sure, the current PPBS is highly structured and fully computerized and, when the forms are completed properly, runs with an accounting preciseness that is said to be the envy of other government agencies. However, there is an anonymous, thought-provoking passage that makes the rounds from time-to-time and which deserves pondering – 'We may have in the current PPBS the most detailed, finely tuned, computerized financial tracking system possible. It may also prove to be treasonous."

[13] Hitch, C.J., and R. N. McKean, "The Economics of Defense in the Nuclear Age," (Boston: Harvard Press, 1961), 53.

[14] Directorate of Cost Analysis, Towards PPBS II: Mission Budgeting– Notions on Improving the Managing of Resources (Washington: Office of the Comptroller of the Army, Department of the Army, 1981), iii. In pages 8 through 9, this document gives a detailed description of the Congressional attempt to gain control of the "money versus capabilities" visibility dilemma by presenting a brief survey of Congressional acts during the period 1949 to 1974. In shows that even as Congress was attempting to add meaning to the money spent, it was building a structure that separated the components of capability while simultaneously establishing equipment as the leading element in capabilities determination. Key Congressional actions in this regard include:

• 1949 PL 81-216, Section 403, Title IV authorized DOD to prescribe the form of its budget, subject to Presidential approval, provided that it complies with requirements contained elsewhere. Specifically, the section stated that the budget will contain . . .the cost of performance of readily identifiable functional programs and activities with segregation of operating and capital programs.

• 1950 PL 81-784, Budgeting and Accounting Procedures Act of 1950 established a model financial management system for all Federal departments and agencies. Basically, the model called for performance budgeting based upon accrual accounting. It required departments and agencies to establish such systems. Performance budgeting required accrual accounting to be meaningful but accrual accounting systems have not been established.

• 1959 PL 86-149, Section 412(b) required Congressional authorization of appropriations for the procurement of aircraft, missiles, and naval vessels.

• 1962 PL 86-436 required Congressional authorization of appropriations for research, development, test and evaluation associated with aircraft, missiles, and naval vessels.

• 1964 PL 88-174 required authorization of appropriations for all RDT&E carried on by the DOD.

• 1965 PL 89-37 required authorization of appropriation for procurement of tracked combat vehicles.

• 1967 PL 90-168 required annual authorization of the personnel strengths of each of the Selected Reserves of the Reserve Components.

• 1969 PL 91-121 required authorization of appropriations for procurement of other weapons (essentially heavy, medium, and light artillery, anti-aircraft, rifles, machine guns, mortars, small arms weapons, and any crew-fired piece using fixed ammunition).

• 1970 PL 91-441 required authorization of appropriations for procurement of torpedoes and related support equipment; and to require authorization by Congress of average annual active duty personnel strength for each component of the Armed Forces. (Subsequently amended by PL 92-436 to substitute an annual "end strength for active duty personnel" requirement in lieu of an "average annual active duty personnel strength."

• 1972 PL 92-436 required authorization of the average military training student loads for each component of the Armed Forces for specified individual training categories of recruit and specialized training, flight training, professional training in military and civilian institutions and officer acquisition training.

• 1973 PL 93-155 required authorization of the "end strength for civilian employees for each component of the DOD for each year."

15 Ibid., 5-6. ". . . in 1974, PL 93-344, The Congressional Budget Act (CBA) provided in Section 601 of Title VI the following: '(i) The Budget transmitted pursuant to subsection (a) for each fiscal year, beginning with the fiscal year ending September 30, 1979, shall contain a presentation of budget authority, proposed budget authority, outlays, and descriptive information in terms of– (1) a detailed structure of National needs which shall be used to reference all agency missions and programs, (2) agency missions; and (3) basic programs."

16 Ibid., 6.

17 This point is addressed extensively in the Towards PPBS II document. One example is found on page 11 where it is said: "Obfuscation is most readily seen and understood when trying to find the total cost of weapons programs in the PPBS. Currently, one can find, at best, RDT&E and Procurement funded costs associated with systems. Personnel and Operations and Maintenance costs are generally not visible by system."

18 John M. Shalikashvili, National Military Strategy of the United States of America (Washington: Joint Chiefs of Staff, 1995), 20. "This national military strategy

builds on its predecessors and continues the evolution from the strategies developed during the Cold War. Despite the breakup of the Soviet Union and the subsequent drawdown of US forces, this is a strategy of continued global engagement."

[19] Department of the Army, Field Manual 100-5 Operations (Fort Monroe, VA: U.S. Army Training and Doctrine Command, 1993), v.

[20] Sean D. Naylor, "Two Wars, Two Opinions," Army Times, (Springfield, VA: Army Times Publishing Co., January 20, 1997), 3.

[21] Shalikashvili, National Military Strategy, iii.

[22] The White House, A National Security Strategy of Engagement and Enlargement (Washington: U.S. Government Printing Office, 1996), 14.

[23] Reimer, 8.

[24] Robert F. Holz, Jack H. Miller, and Howard H. McFann, Determinants of Effective Unit Performance: Research on Measuring and Managing Unit Training Readiness (Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences, 1994), 300.

[25] Jeffrey Davidson, Vietnam at War, The History 1946-1975 (Novato, CA: Presidio Press, 1988), 320.

[26] Halberstam, 409, says in relation to the deterrence value of high tech systems: "In Indochina (one of the three places were Dulles had apparently rescued the peace– the other two were in Korea and the Island of Quemoy), he had succeeded by sending two aircraft carriers steaming into the South China Sea. It was, he noted, 'a modern version of the classical show of force designed to deter any . . . attack against Indochina, and to provide weapons for instant retaliation. . .' In fact, the aircraft carriers had been a bluff that did not work and had absolutely no effect on the Vietminh."

[27] Jeffrey Record, "Vietnam in Retrospect: Could We Have Won?" Parameters, Winter 1996-1997, 51-65, says: "A more satisfying if perplexing conclusion is that the war was, at one time or another, all of the above: limited (for the United States), total (for North Vietnam and the National Liberation Front), civil (at stake was the future political control of South Vietnam), international (the war elicited massive direct US and indirect Soviet and Chinese intervention), conventional (for the US and its South Vietnamese ally from 1965 on, and increasingly, after the Tet Offensive, for the North Vietnamese), guerrilla (largely for both North Vietnam and the NLF before the Tet Offensive), and revolutionary (the communist side sought not only national reunification but also imposition on the South of a revolutionary social order)."

[28] Halberstam, 409.

[29] Alexis de Tocqueville, Democracy in America, Edited and Abridged by Richard D. Heffner (New York: Penguin Books, 1956), 167.

[30] Mao Tse-tung "Problems of War and Strategy" 1938.

[31] Department of the Army, TRADOC Regulation 11-15 Concept Based Requirements System (Fort Monroe: U.S. Army Training and Doctrine Command, 1989), 1-7.

[32] Department of the Army, TRADOC Regulation 11-15 Concept Based Requirements System (Fort Monroe, VA: U.S. Army Training and Doctrine Command, 1989), 9.

[33] Ibid.

[34] Department of the Army, "OPTEMPO/OPREP," Briefing by DAMO-TR, Office of the Army Deputy Chief of Staff for Operations.

Author's Note: TRADOC Pamphlet 350-10 Combined Arms Training Strategy Development, (Fort Monroe, VA: Headquarters, U.S. Army Training and Doctrine Command, 1993), 2, describes Combined Arms Training Strategy (CATS) as being "the Army's overarching strategy for the current and future training of the force. It describes how the Army will train and sustain the total force to standard in the institution, unit, and through self-development, to support the post cold war Force Projection Army. CATS also identifies, quantifies, and justifies the training resources required to execute the training. This includes ensuring that relevant practice fields which replicate the battlefield with great fidelity are available to the Force Projection Army. Practice fields are training locations with the resources necessary to support training on specific collective missions (i.e., NTC, JRTC, JOTC). Combined Arms Training Strategy (CATS) categories are two distinct categories of strategies affecting different time frames upon which CATS focus. These include:
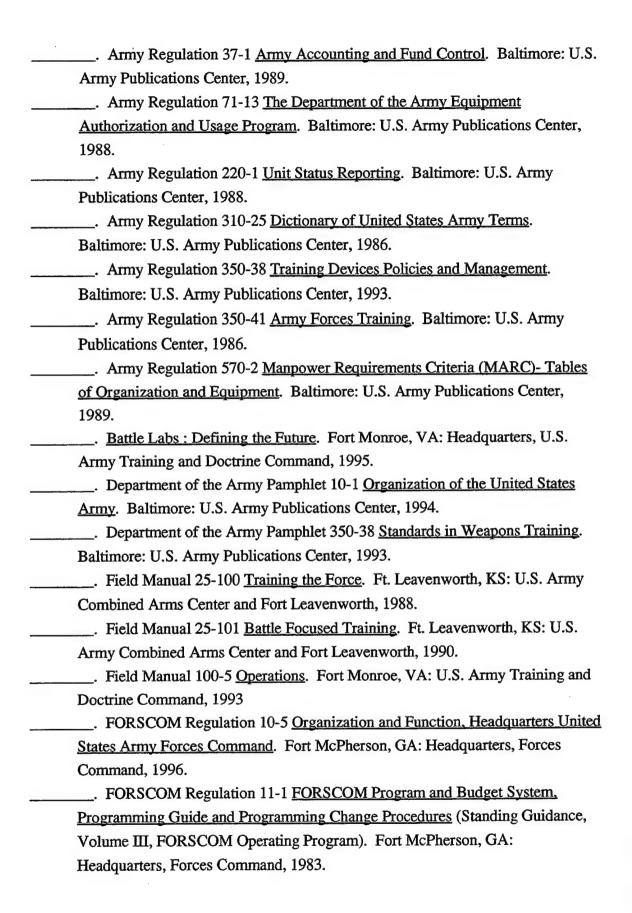
- current strategies for institutions, units and self-development are baseline strategies which describe how the Army trains now. Current strategies are based on current threat/capability requirements, mission, doctrine, organization, and training resources (OPTEMPO, ammunition, training land, ranges, facilities, and TADSS). Current strategies apply to the budget and execution years of the budget process.

- future strategies reflect changes in threat, technology, budget, force capabilities, and mission in the years to come. Future strategies also forecast changes in the mix and type of training resources needed to execute future training, ensuring that the Army has a sound acquisition plan for obtaining these training resources. Future strategies are normally developed from the POM period to at least ten years into the future (i.e., through the second year of the extended planning period (EPP) of the budget process)."
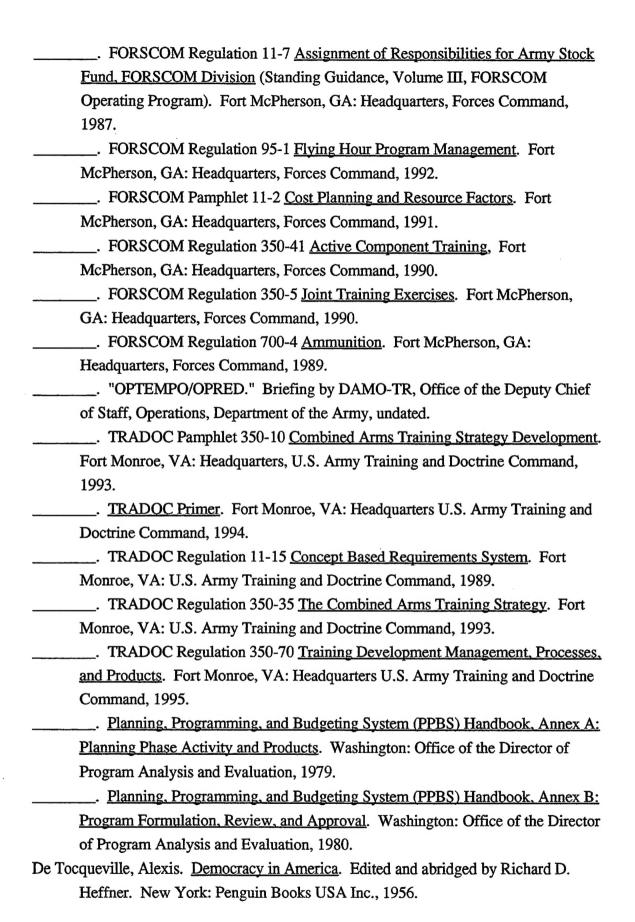
[35] Ibid.

[36] Ibid.

[37] Government Accounting Office, GAO/NSIAD-94-246BR, <u>Briefing Report to Congressional Committees, 1995 Budget- Potential Reductions to the Operation and Maintenance Programs</u> (Washington: U.S. General Accounting Office, National Security and International Affairs Division, 1994), 7.

[38] John Phillips, Comptroller of the 101st Airborne Divisions (Air Assault), interview by author, Spring 1996.

[39] McCain, John , "Ready Tomorrow: Defending American Interests in the 21st Century" (Washington: U.S. Senate, 1996), 1.

[40] Government Accounting Office, 16. Current constructs have been rendered so meaningless that they have become an obstacle (or perhaps shield) against accountability as evidenced in this statement in the GAO report: "to evaluate how the services are using their O&M (Operation and Maintenance) funds, we asked them to provide us with their budget requests, appropriations, and obligations by program element code for fiscal years 1993 through 1995. The Navy was unable to provide any information at the program elemement level. As a result, we did not include the Navy in our analysis. Also, the Army and the Air Force were unable to provide appropriation data by program element code because neither service allots the appropriation below the subactivity level."

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